

Application Number 10/691,249

Responsive to Office Action mailed October 24, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A dual-layer magnetic recording medium comprising a non-magnetic substrate having a front side and a back side, at least one lower support layer formed over the front side and at least one magnetic upper layer formed over said at least one lower layer, said magnetic upper layer comprising magnetic pigment particles having an average length of less than about 75 nanometers, and a binder system therefor, said lower support layer comprising at least one non-magnetic pigment and a binder system therefor, said binder system for said lower support layer having a Tg lower than a Tg of said binder system for said magnetic upper layer, wherein said lower support layer binder system Tg is at least about 60°C as calculated using the Fox equation, said magnetic recording medium having two edges and exhibiting substantially less cracking on said edges when compared to an otherwise identical dual-layer magnetic recording medium comprising a magnetic upper layer and a lower support layer having substantially identical binder systems.

2. (Currently amended) A dual-layer magnetic recording medium according to claim 1, wherein ~~said binder system for said support layer has a~~ the support layer binder system Tg calculated using the Fox equation is of less than about 72 °C, and wherein Tg of the composite front side is greater than about 80 °C.

3. (Currently amended) A dual-layer magnetic recording medium according to claim 1, wherein said binder system for said support layer comprises a hard resin and a soft resin, and wherein said hard resin has a Tg greater than a Tg of said soft resin.

4. (Original) A dual-layer magnetic recording medium according to claim 3, wherein the hard resin in said binder system has a Tg of greater than about 70°C.

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5. (Currently amended) A dual-layer magnetic recording medium according to claim 1, wherein said binder system for said support layer comprises a polyvinyl acetal polymer and a soft resin, and wherein said polyvinyl acetal polymer has a Tg greater than a Tg of said soft resin.

6. (Original) A dual-layer magnetic recording medium according to claim 5, wherein said polyvinyl acetal resin comprises vinyl alcohol, vinyl acetals, and vinyl acetate moieties.

7. (Currently amended) A dual-layer magnetic recording medium according to claim 1, wherein said binder system for said support layer comprises a polyurethane and a soft resin, and wherein said polyurethane has a Tg greater than a Tg of said soft resin.

8. (Original) A dual-layer magnetic recording medium according to claim 7, wherein said polyurethane resin has a Tg of greater than about 70°C.

9. (Original) A dual-layer magnetic recording medium according to claim 3, wherein said soft resin is a polyurethane resin.

10. (Original) A dual-layer magnetic recording medium according to claim 9, wherein said polyurethane resin has a Tg of less than about 50°C.

11. (Original) A dual-layer magnetic recording medium according to claim 1, wherein said lower support layer further includes a fatty acid ester lubricant and a fatty acid lubricant.

12. (Original) A dual-layer magnetic recording medium according to claim 11, wherein said fatty acid lubricant comprises a stearic acid.

13. (Original) A dual-layer magnetic recording medium according to claim 12, wherein said stearic acid is at least about 90% pure.

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14. (Original) A dual-layer magnetic recording medium according to claim 1, wherein said lower support layer comprises at least one non-magnetic particulate pigment selected from the group consisting of iron oxides, titanium dioxide, alumina, tin oxide, titanium carbide, silicon carbide, silicon dioxide, silicon nitride, and boron nitride.

15. (Original) A dual-layer magnetic recording medium according to claim 1, wherein said topmost magnetic layer has a thickness of from about 0.01 micron to about 0.25 micron.

16. (Original) A dual-layer magnetic recording medium according to claim 1, wherein said primary magnetic pigment particles have a coercivity of at least about 2300 Oersteds.

17. (Currently amended) A dual-layer magnetic recording medium according to claim 1, wherein said binder system for said primary magnetic particles in said magnetic upper layer comprises a hard resin component and a soft resin component, and wherein said hard resin component has a Tg at least about 2°C greater than a Tg of the soft resin component.

18. (Currently amended) A dual-layer magnetic recording medium according to claim 17, wherein the hard resin component has a Tg isef greater than about 70°C.

19. (Currently amended) A dual-layer magnetic recording medium according to claim 17, wherein the soft resin component has a Tg isef less than about 68°C.

20. (Original) A dual-layer magnetic recording medium according to claim 17, wherein said soft resin component is a polyurethane resin.

21. (Original) A dual-layer magnetic recording medium according to claim 17, wherein said hard resin component is a non-halogenated vinyl resin.

22. (Original) A dual-layer magnetic recording medium according to claim 21, wherein said non-halogenated vinyl resin is a copolymer comprising styrene and acrylonitrile.

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23. (Original) A dual-layer magnetic recording medium according to claim 1, wherein said magnetic recording layer further comprises a large carbon particle material.

24. (Original) A dual layer magnetic recording medium according to claim 1, wherein the upper layer comprises a primary ferromagnetic pigment, aluminum oxide, a spherical large particle carbon material, a polyurethane binder, a non-halogenated vinyl binder, a hardener, a fatty acid ester lubricant, and a fatty acid lubricant.

25. (Original) A dual-layer magnetic recording medium according to claim 1, further comprising a back coat coated on said back side of said substrate.

26. (Original) A dual-layer magnetic recording medium according to claim 25, wherein the back coat includes a carbon black pigment, a urethane binder, and at least one compound selected from phenoxy resin and nitrocellulose.

27. (Previously presented) A magnetic recording medium according to claim 26, wherein the back coat further comprises a metal oxide selected from the group consisting of titanium dioxide, aluminum oxide, and mixtures thereof.

28. (New) A dual-layer magnetic recording medium according to claim 1, wherein the lower support layer binder system T_g is at least about 65°C.

29. (New) A dual-layer magnetic recording medium according to claim 1, wherein the lower support layer binder system T_g is from about 65 °C to about 72°C.

30. (New) A dual-layer magnetic recording medium comprising a non-magnetic substrate having a front side and a back side, at least one lower support layer formed over the front side and at least one magnetic upper layer formed over said at least one lower layer, said magnetic upper layer comprising magnetic pigment particles having an average length of less than about 75 nanometers, and a binder system therefor, said lower support layer comprising at

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least one non-magnetic pigment and a binder system therefor, said binder system for said lower support layer having a Tg of at least about 60°C as calculated using the Fox equation.